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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/800,416	03/12/2004	Alessandro Palma	2323-2-3	7058

7590

12/03/2004

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EXAMINER

NGUYEN, TU MINH

ART UNIT PAPER NUMBER

3748

DATE MAILED: 12/03/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/800,416

Applicant(s)

PALMA ET AL.

Examiner

Tu M. Nguyen

Art Unit

3748

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 8-13 is/are rejected.
- 7) ☒ Claim(s) 4-7 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 12 March 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

## **DETAILED ACTION**

### ***Drawings***

1. The drawings are objected to because a label --FIG. 1-- should be included. Correction is required.

### ***Claim Objections***

2. Claim 2 is objected to because the claim is inconsistent with the disclosure in paragraph 17 of the specification. As such, on line 2 of the claim, "upstream" should read --downstream--. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 8-12 are rejected under 35 U.S.C. 112, second paragraph, because claims 8 and 10 recite the limitation "the average value for ratio". There is insufficient antecedent basis for this limitation in these claims.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office Action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1-3 and 13 are rejected under 35 U.S.C. 102(e) as being anticipated by Meyer et al. (U.S. Patent 6,615,577).

Re claim 1, as shown in Figures 1, 10, and 12, Meyer et al. disclose a method for estimating the degradation of the trapping capacity of a NOx-Trap catalytic converter (34), comprising the steps of:

- performing a first NOx regeneration process of a predetermined duration (step 48),
- determining whether the actual duration of the first NOx regeneration process is equal to the predetermined duration and assuming that the trapping capacity is unchanged if the actual duration of the first NOx regeneration process is equal to the predetermined duration (step 68 with NO answer and step 70);
- if the actual duration of the first NOx regeneration process is less than the predetermined duration, performing at least one corrective action in order to attempt to counteract the degeneration of the NOx-Trap catalytic converter (step 68 with YES answer, step 72, step 102 with YES answer, steps 104 and 106);

- performing a subsequent NOx regeneration process is performed; and
- determining whether the actual duration of the subsequent NOx regeneration process is equal to the predetermined duration (step 110), whereas

- if the actual duration of the subsequent NOx regeneration process is equal to the predetermined duration, then new characteristic operating parameters for the corrective action are used for the subsequent life of the NOx- Trap catalytic converter (step 110 with NO answer); and

- if the actual duration of the subsequent NOx regeneration process is less than the predetermined duration, the estimated trapping capacity (C) of the NOx-Trap catalytic converter is reduced (step 110 with YES answer, step 112 with YES answer, and step 114).

Re claim 2, in the method of Meyer et al., the signal of an ON/OFF type lambda sensor (38) arranged downstream from the NOx-Trap catalytic converter (34) is used to determine whether the actual duration of a NOx regeneration process is equal to the predetermined duration.

Re claim 3, in the method of Meyer et al., if no transition in the signal from the lambda sensor is detected during the NOx regeneration process, then it is assumed that the actual duration of the NOx regeneration process is equal to the predetermined duration whereas (step 52 with NO answer), if a transition in the signal from the lambda sensor is detected during the NOx regeneration process, then it is assumed that the actual duration of the NOx regeneration process

is less than the predetermined duration (steps 52 with YES answer, 54, 56, 60, 62, 64, 66, 68 with YES answer, and 72).

Re claim 13, in the method of Meyer et al., the predicted value for the duration of the NOx regeneration process is calculated using a storage model of the NOx-Trap catalytic converter, said model being based on an estimate of the trapping capacity of the NOx-Trap catalytic converter, such that the NOx regeneration process only lasts for the time that is strictly necessary to remove the NOx groups trapped in the NOx-Trap catalytic converter (see Figure 19).

#### ***Allowable Subject Matter***

7. Claims 4-7 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 8-12 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office Action and to include all of the limitations of the base claim and any intervening claims.

#### ***Prior Art***

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure and consists of five patents and one patent application: Hepburn (U.S. Patent 5,771,685), Poggio et al. (U.S. Patent 6,327,848), Yonekura et al. (U.S. Patent 6,345,498),

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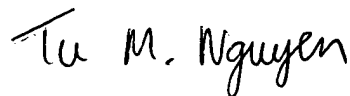
Takaku et al. (U.S. Patent 6,502,388), Meyer et al. (U.S. Patent 6,691,020), and Sun et al. (U.S. Patent Application 2004/0031261) further disclose a state of the art.

***Communication***

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Tu Nguyen whose telephone number is (571) 272-4862.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mr. Thomas E. Denion, can be reached on (571) 272-4859. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



TMN

Tu M. Nguyen

November 29, 2004

Patent Examiner

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